May 2022
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The Weather Whisper

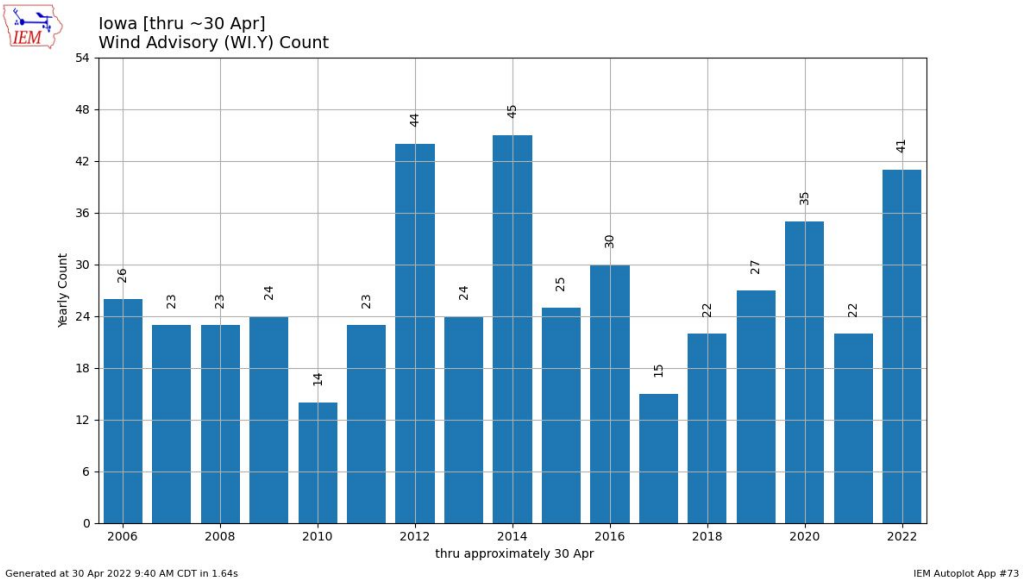
WHAT'S INSIDE?

Every Iowan Knows...It's Windy!

Roger Vachalek, Lead Meteorologist

We've had an active weather pattern so far this year with a continuous train of winter and spring storms rolling over the Central Plains and Iowa since the beginning of the year. It has not been uncommon for us to see periods of winds in excess of 45 to 60 mph over much of the region. The real question is - how does this compare so far, to previous years through the last week of April?

Here's a graph of the number of Wind Advisories that have been issued in Iowa since 2005. The plot represents where we stand from the first of a year through the end of April of any given year. So far in 2022, all Iowa National Weather Service Offices have issued 41 Wind Advisories across the...



Graphic from the Iowa Environmental Mesonet.

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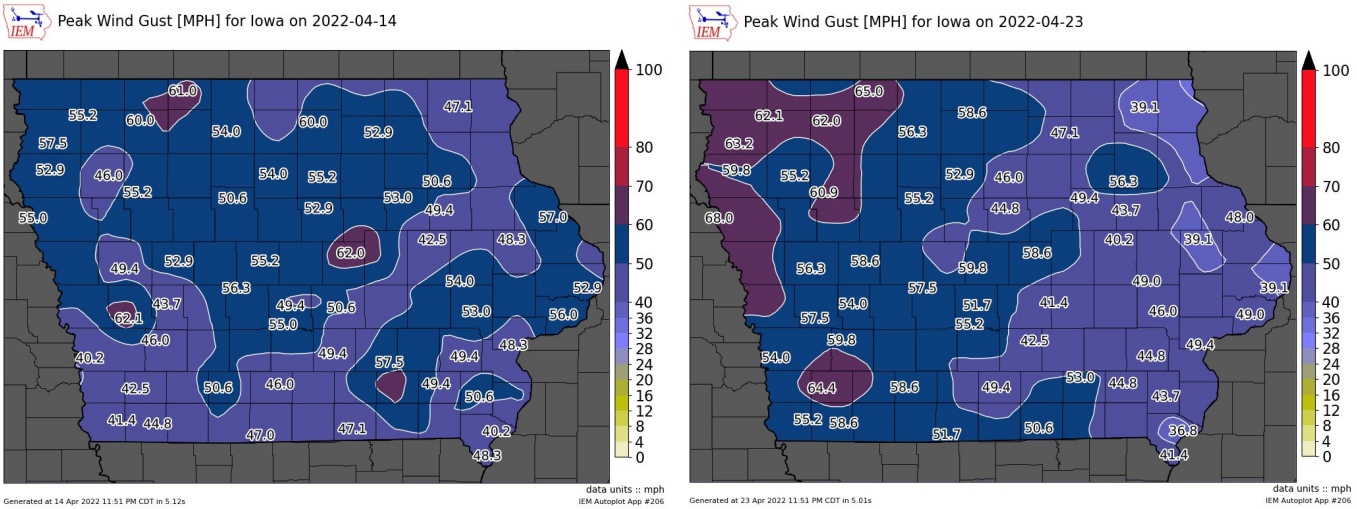
... state and even two High Wind Warnings so far over portions of the state. 41 Wind Advisories puts us at third highest out of the last 16 years with only 2014 and 2012 having more Wind Advisories between January 1 and April 30.

The windiest days of 2022 so far were on April 14th and April 23rd when wind gusts exceeded 60 mph! Below are statewide plots of the maximum wind gusts from the two days. The windier of the two days was April 23rd when yet another powerful spring storm rolled across Iowa bringing rain and some severe weather.



Graphics from the Iowa Environmental Mesonet.

What Causes All the Wind?

The wind is caused by the difference in pressure between areas of low and high pressure. The larger the differences (low barometric pressure in storms vs higher barometric pressure in highs), the stronger the winds. But there is *even more to the story!* The lower portion of the atmosphere, where we live, is called the boundary layer. Clouds form at the top of the boundary layer, or what meteorologists also call the mixed layer where mixing within the layer brings stronger winds down to the surface. This process usually begins about 9 to 10 am in the morning and relaxes around 5 to 7 pm in the evening. So, there's the general sustained wind caused by the pressure differences between weather systems, and wind gusts caused by the mixing process each day. Some days you have little of both processes at work, and some days you have both working together in a big way - like many days this year when Iowa experienced breezy to strong winds. Weather patterns that favor big storms like we have had this winter and spring result in more windy days!

More Than Just Wind

Of course, wind hasn't been the only story this month. In April Iowa experienced tornadoes on the 12th and 23rd, an Easter snow on April 17th, and flash flooding on the 22nd. It was a busy month, and early indications are that May could be off to an active start as well. Either way, we're prepared. Be sure that you are, too!

Research on the 2020 Derecho

Brooke Hagenhoff, Meteorologist

Earlier in April, the *Bulletin of the American Meteorological Society (BAMS)* published a research article on the August 2020 derecho titled "Satellite-Based Characterization of Convection and Impacts from the Catastrophic 10 August 2020 Midwest U.S. Derecho" which discusses the evolution of the derecho as viewed by satellite imagery and radar, plus the use of satellite imagery after the storm to visualize the damage swath. This paper was the result of work by a number of researchers and NWS meteorologists including our own Rod Donavon and Craig Cogil, plus the climatologist for Iowa, Justin Glisan.

Check out the full article here:
https://journals.ametsoc.org/view/journals/bams/103/4/BAMS-D-21-0023.1.xml

STAFF SPOTLIGHT

Rod Donavon

Warning Decisions, Radar Meteorology, and Post-Event Evaluation

Lead Meteorologist

22 Years of Service

Background

Rod began his career in 2000 at the NWS Grand Forks and endured three very cold winters before arriving at the Des Moines office in 2003, with a promotion to Lead Meteorologist in 2007. Rod recalls several memorable weather events that he has worked including the March 2007 blizzard, the 2008 severe weather and flooding, the 2010 Ames Flooding, the 2020 Derecho and the Winterset tornado all stand out.

Early in Rod's career, he did research focused on warning decision making for large hail and was awarded the National Isaac M. Cline Award in Meteorology for this research. Today, Rod's work is focused on tornado warning decision making which includes near storm environment analysis and radar interrogation. He is a member of the NWS Central Region Convective Warning Improvement Project (CWIP) which was recently awarded the NOAA Administrator's Award. Rod also enjoys utilizing satellite data as a storm survey aid and to provide high resolution tornado track information. Rod is the current President of the Central Iowa NWA and is the chair for the chapter's radar workshop at the annual Severe Storms and Doppler Radar Conference.

On the Cover:
A tornado near Gilmore City, Iowa on April 12th, 2022. Photo courtesy of Kaylan Patel.

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